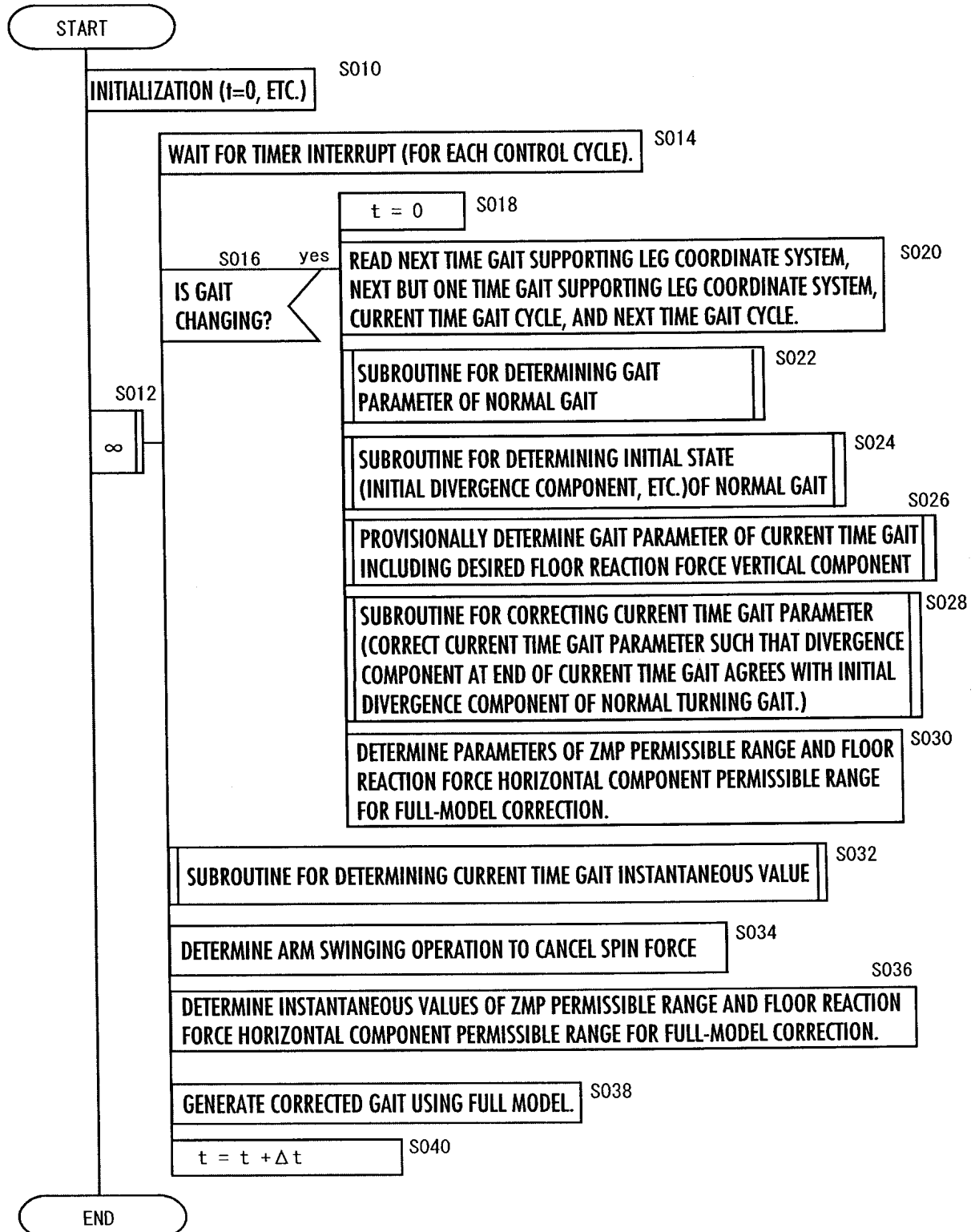


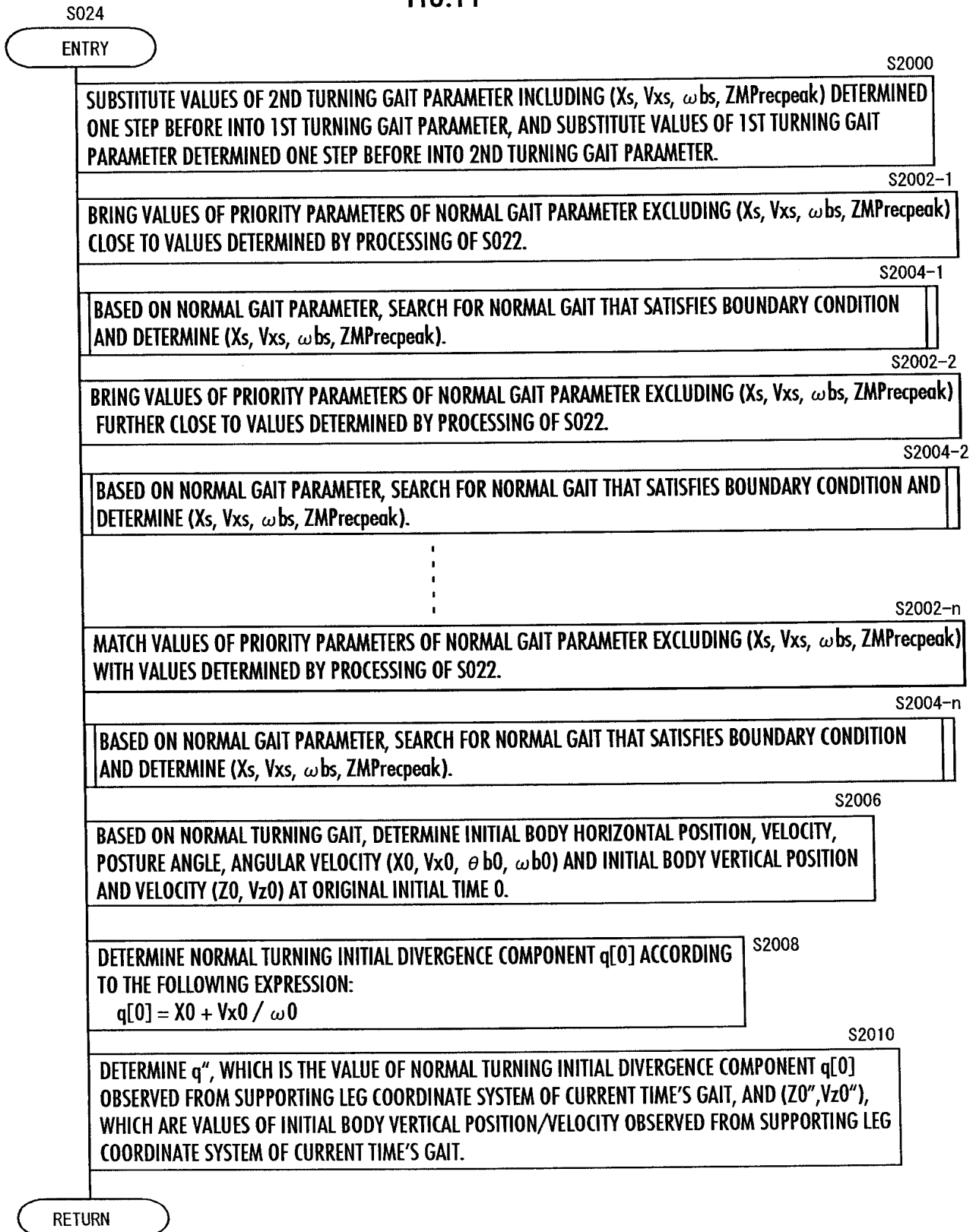
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FIG.9



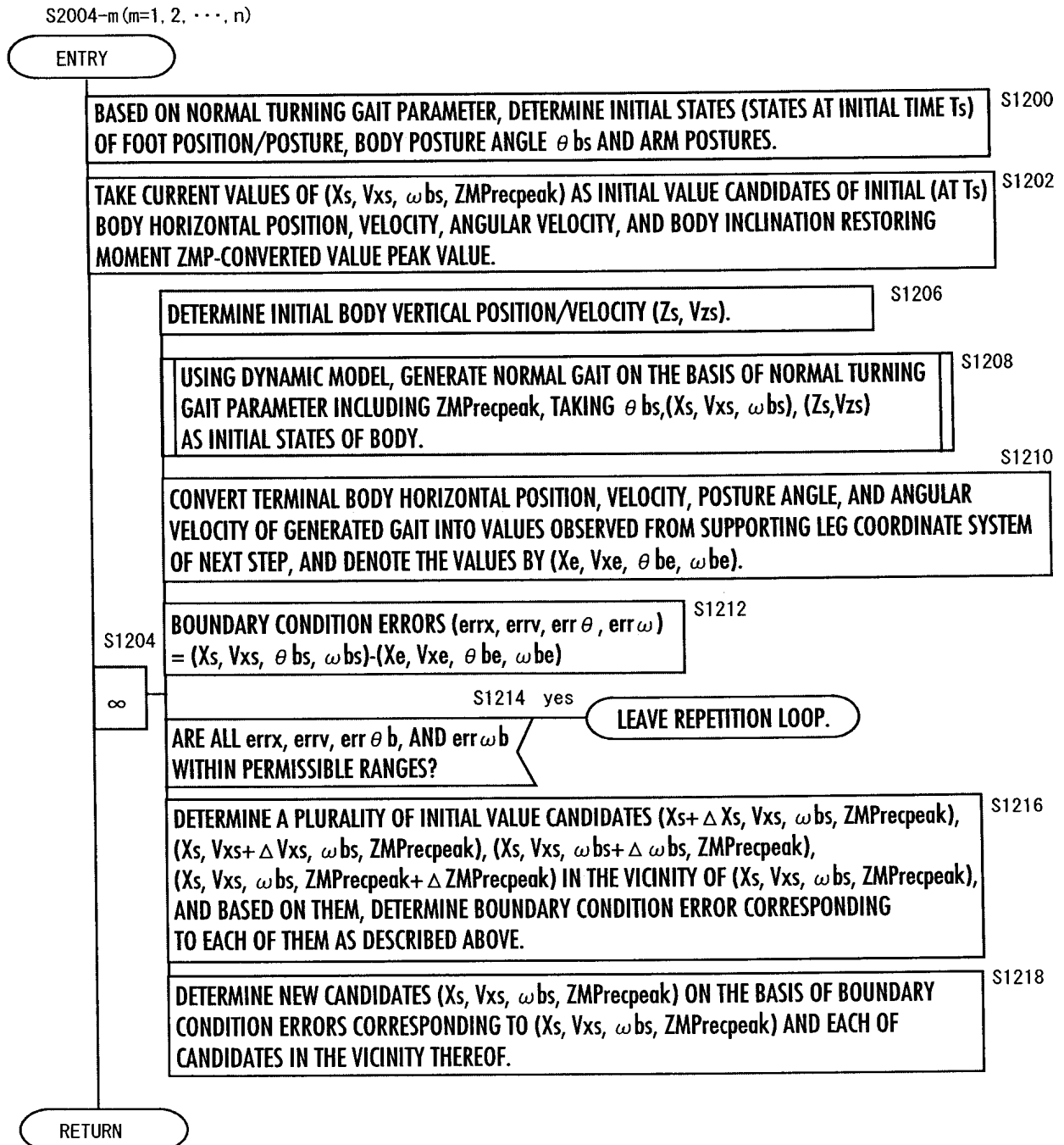
11 / 20

FIG.11



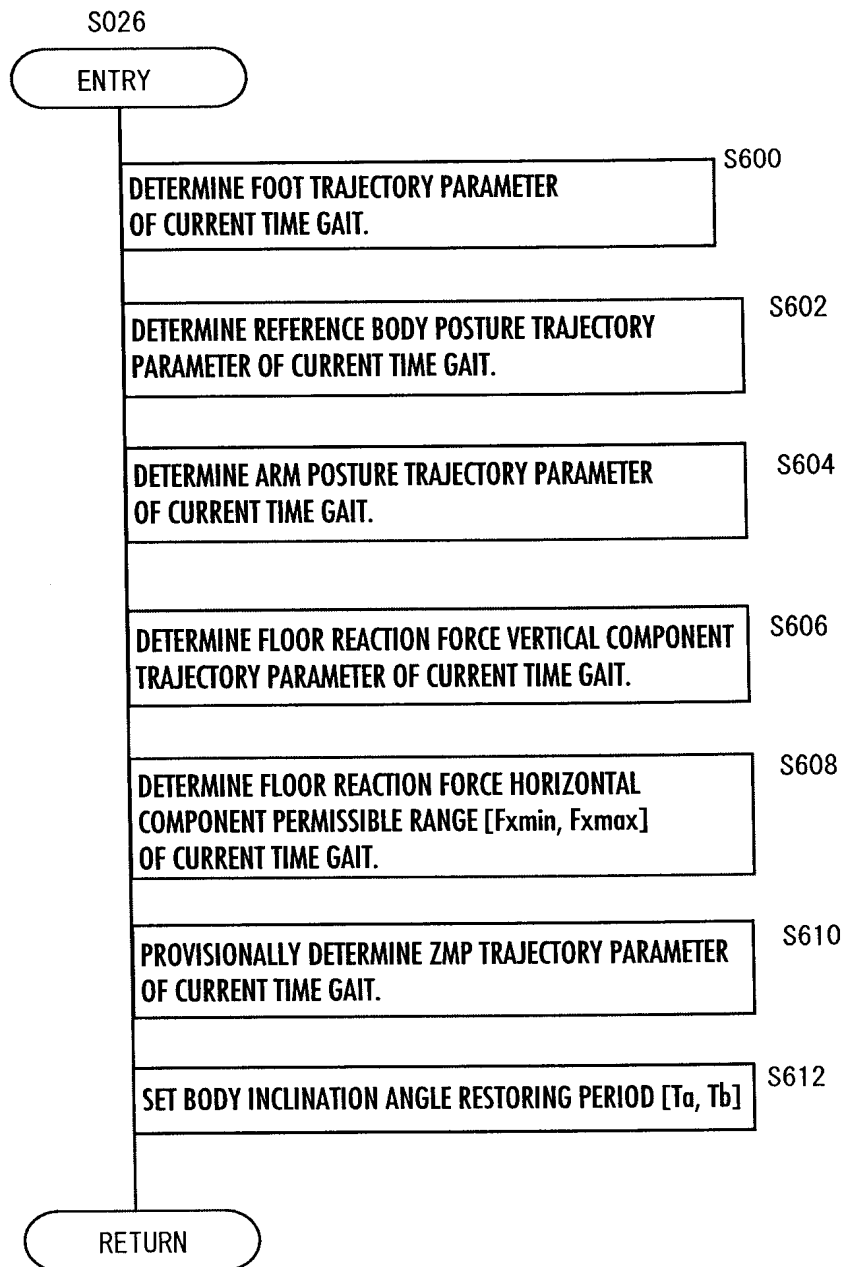
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FIG.12



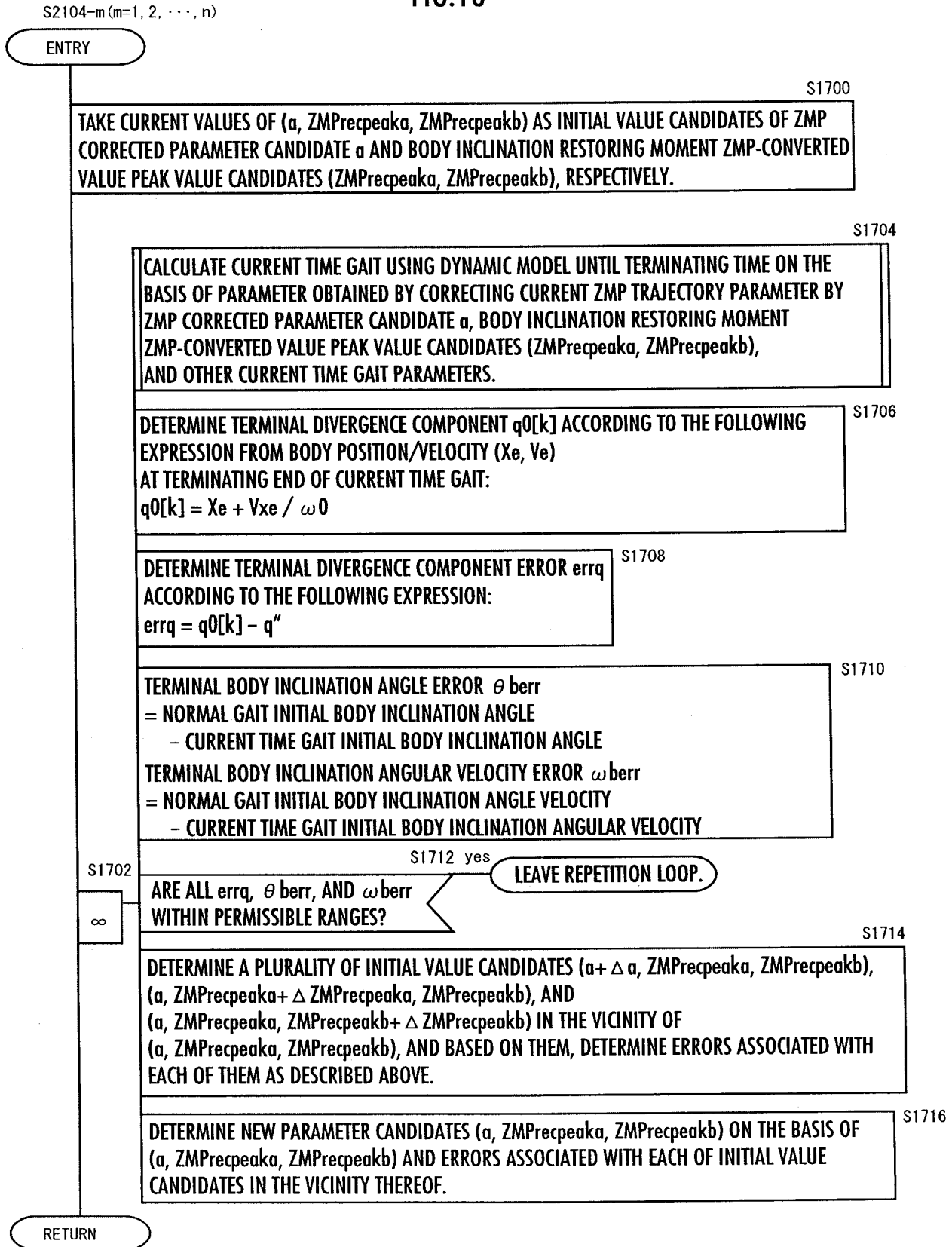
16 / 20

FIG.16



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FIG.18



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FIG.19

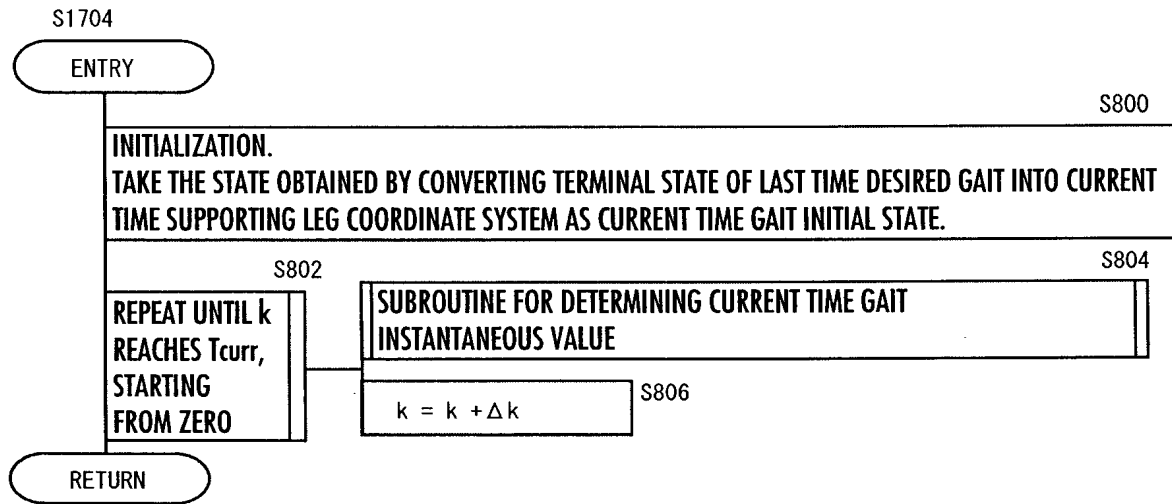


FIG.20

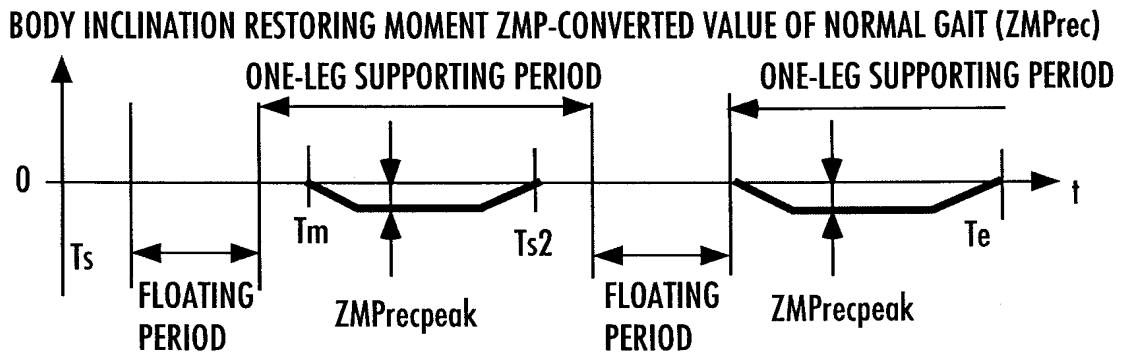
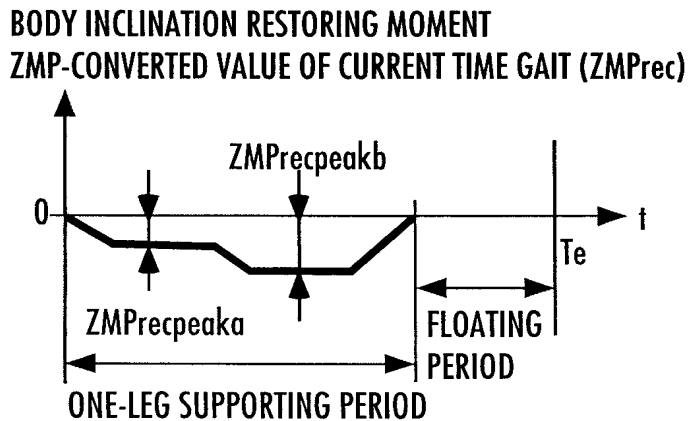
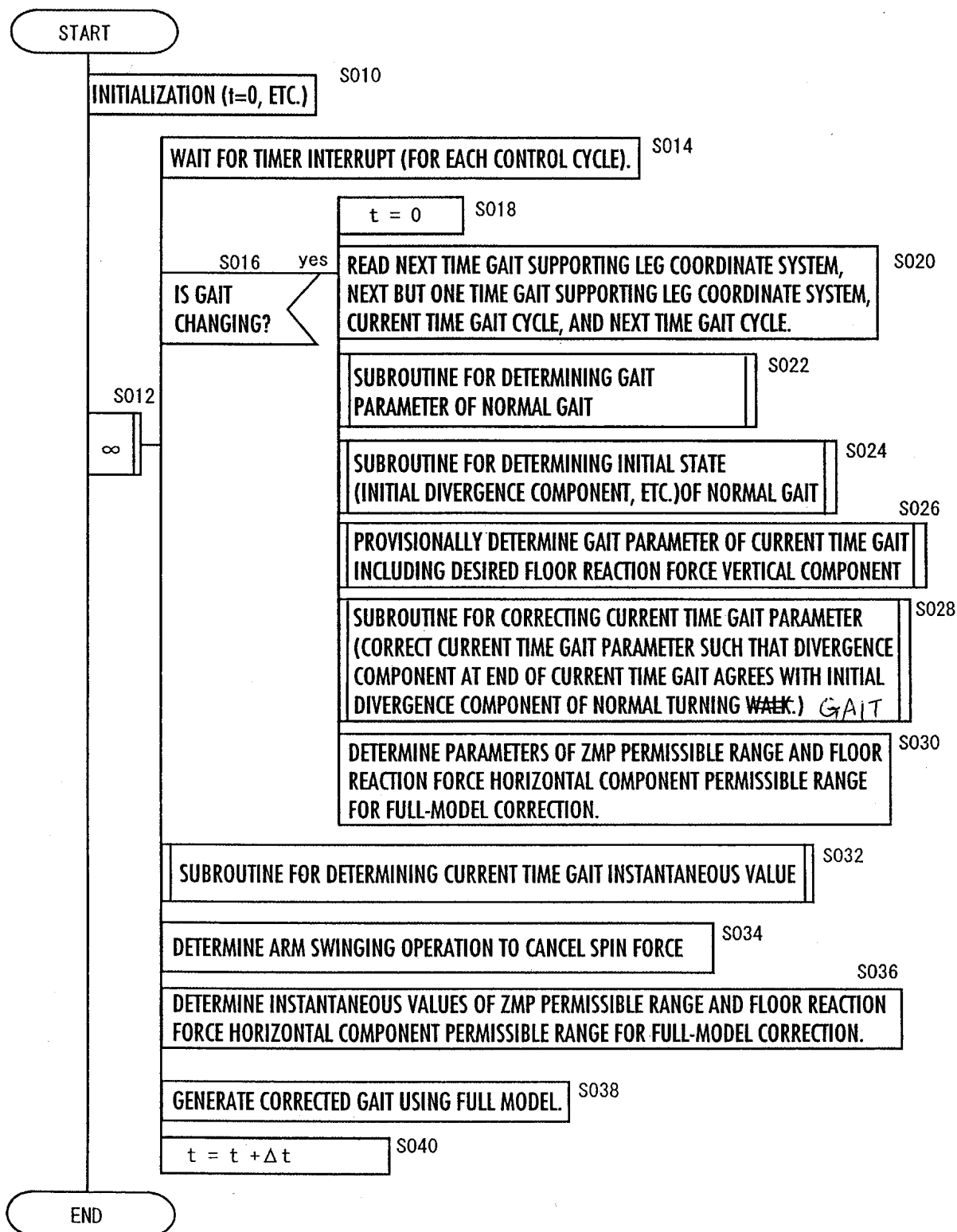


FIG.21



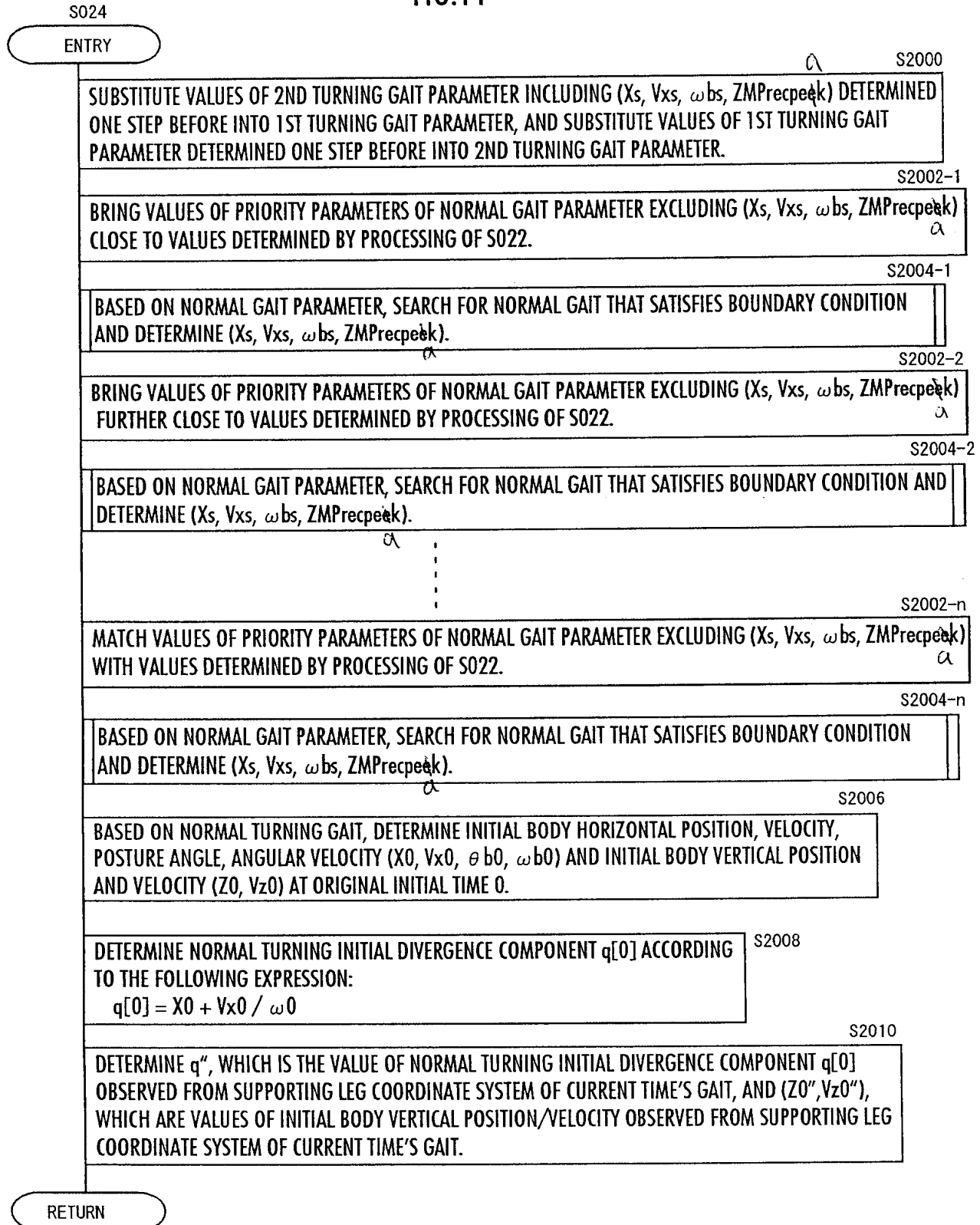
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FIG.9



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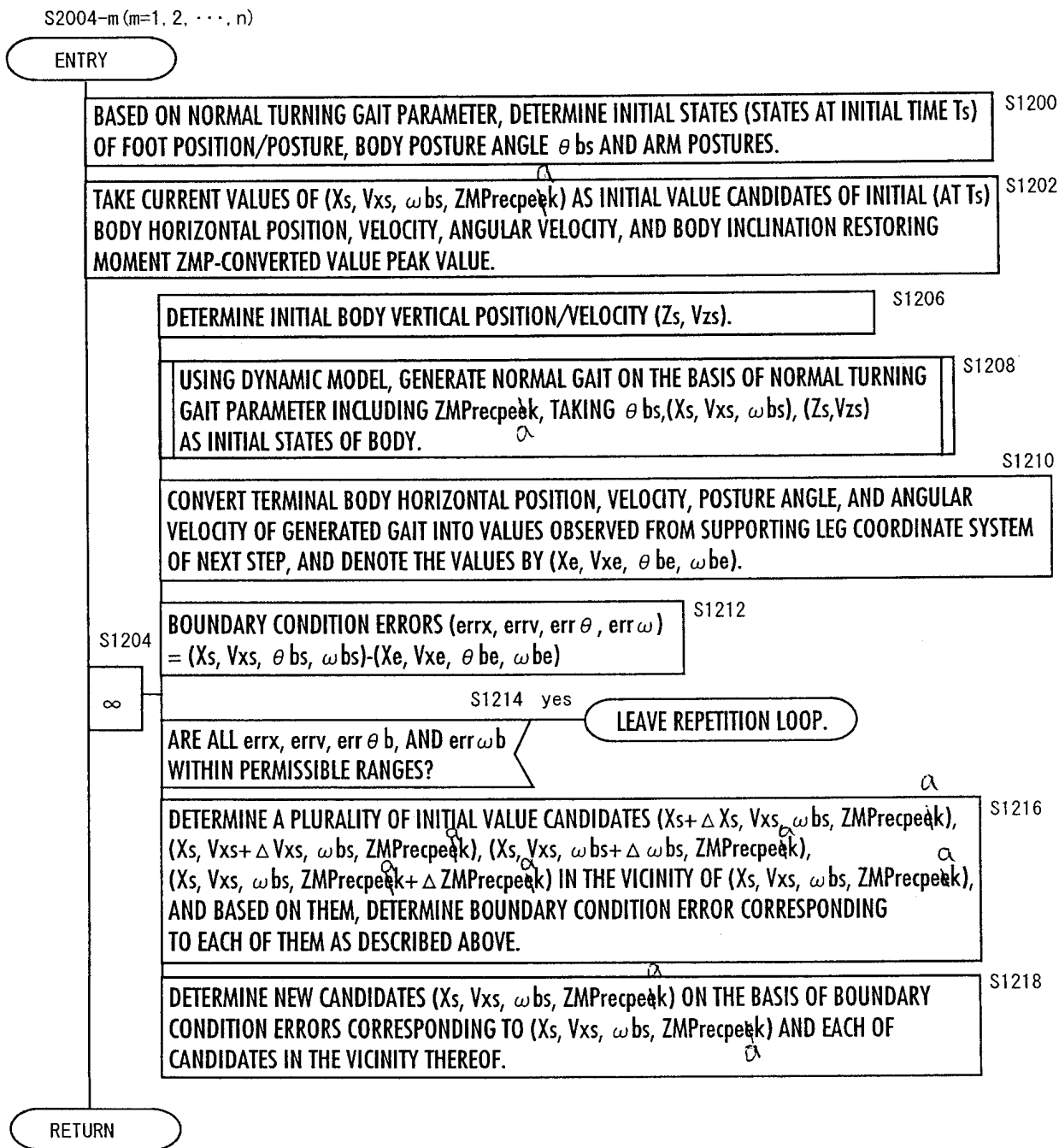
FIG.11





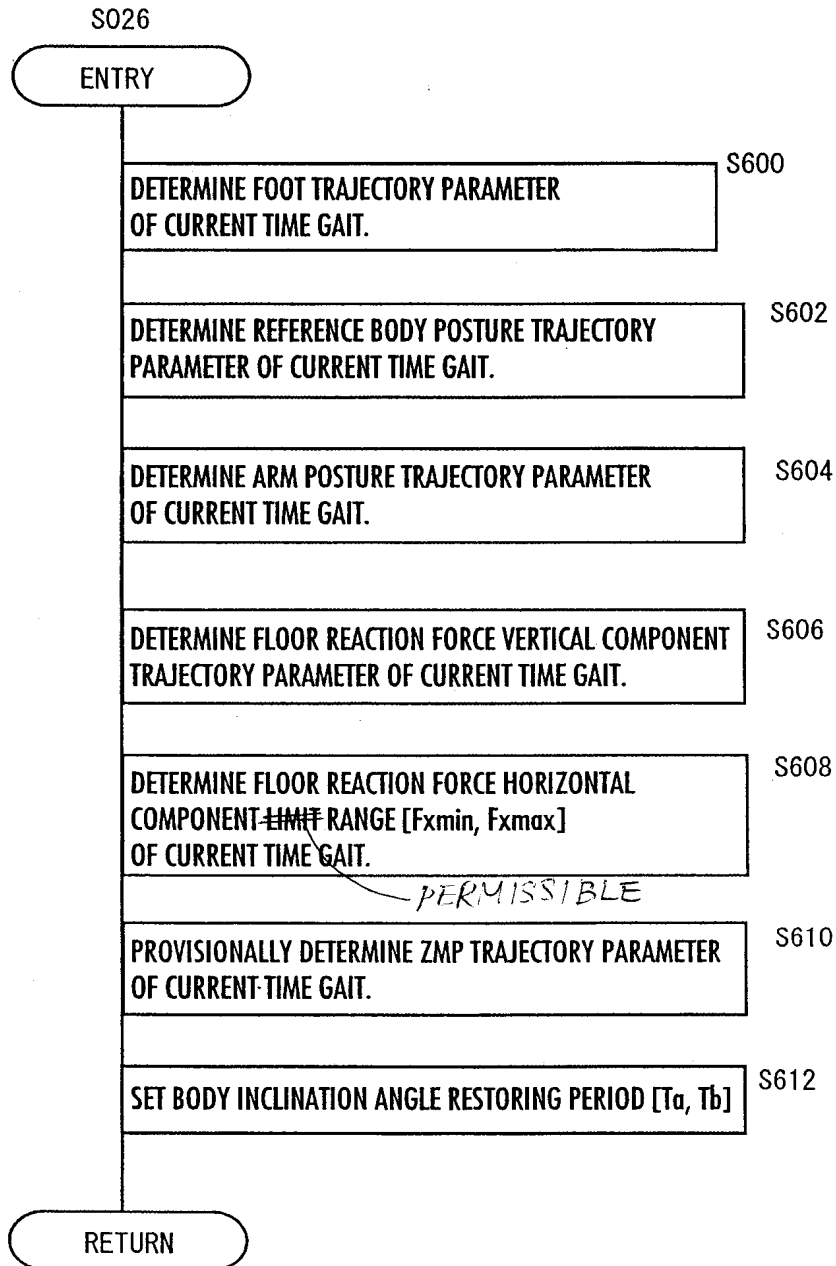
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FIG.12



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FIG.16



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FIG.18

S2104-m (m=1, 2, ..., n)

ENTRY

TAKE CURRENT VALUES OF ( $\alpha$ ,  $ZMP_{prepeakb}$ ,  $ZMP_{prepeakb}$ ) AS INITIAL VALUE CANDIDATES OF ZMP CORRECTED PARAMETER CANDIDATE  $\alpha$  AND BODY INCLINATION RESTORING MOMENT ZMP-CONVERTED VALUE PEAK VALUE CANDIDATES ( $ZMP_{prepeakb}$ ,  $ZMP_{prepeakb}$ ), RESPECTIVELY.

S1700

CALCULATE CURRENT TIME GAIT USING DYNAMIC MODEL UNTIL TERMINATING TIME ON THE BASIS OF PARAMETER OBTAINED BY CORRECTING CURRENT ZMP TRAJECTORY PARAMETER BY ZMP CORRECTED PARAMETER CANDIDATE  $\alpha$ , BODY INCLINATION RESTORING MOMENT ZMP-CONVERTED VALUE PEAK VALUE CANDIDATES ( $ZMP_{prepeakb}$ ,  $ZMP_{prepeakb}$ ), AND OTHER CURRENT TIME GAIT PARAMETERS.

S1704

DETERMINE TERMINAL DIVERGENCE COMPONENT  $q0[k]$  ACCORDING TO THE FOLLOWING EXPRESSION FROM BODY POSITION/VELOCITY ( $X_e$ ,  $V_e$ ) AT TERMINATING END OF CURRENT TIME GAIT:  
 $q0[k] = X_e + V_e / \omega_0$

S1706

DETERMINE TERMINAL DIVERGENCE COMPONENT ERROR  $errq$  ACCORDING TO THE FOLLOWING EXPRESSION:  
 $errq = q0[k] - q''$

S1708

TERMINAL BODY INCLINATION ANGLE ERROR  $\theta_{berr}$   
 = NORMAL GAIT INITIAL BODY INCLINATION ANGLE  
 - CURRENT TIME GAIT INITIAL BODY INCLINATION ANGLE  
 TERMINAL BODY INCLINATION ANGULAR VELOCITY ERROR  $\omega_{berr}$   
 = NORMAL GAIT INITIAL BODY INCLINATION ANGLE VELOCITY  
 - CURRENT TIME GAIT INITIAL BODY INCLINATION ANGULAR VELOCITY

S1710

S1702

S1712 yes

LEAVE REPETITION LOOP.

ARE ALL  $errq$ ,  $\theta_{berr}$ , AND  $\omega_{berr}$  WITHIN PERMISSIBLE RANGES?

∞

DETERMINE A PLURALITY OF INITIAL VALUE CANDIDATES ( $\alpha + \Delta \alpha$ ,  $ZMP_{prepeakb}$ ,  $ZMP_{prepeakb}$ ), ( $\alpha$ ,  $ZMP_{prepeakb} + \Delta ZMP_{prepeakb}$ ,  $ZMP_{prepeakb}$ ), AND ( $\alpha$ ,  $ZMP_{prepeakb}$ ,  $ZMP_{prepeakb} + \Delta ZMP_{prepeakb}$ ) IN THE VICINITY OF ( $\alpha$ ,  $ZMP_{prepeakb}$ ,  $ZMP_{prepeakb}$ ), AND BASED ON THEM, DETERMINE ERRORS ASSOCIATED WITH EACH OF THEM AS DESCRIBED ABOVE.

S1714

DETERMINE NEW PARAMETER CANDIDATES ( $\alpha$ ,  $ZMP_{prepeakb}$ ,  $ZMP_{prepeakb}$ ) ON THE BASIS OF ( $\alpha$ ,  $ZMP_{prepeakb}$ ,  $ZMP_{prepeakb}$ ) AND ERRORS ASSOCIATED WITH EACH OF INITIAL VALUE CANDIDATES IN THE VICINITY THEREOF.

S1716

RETURN

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FIG.19

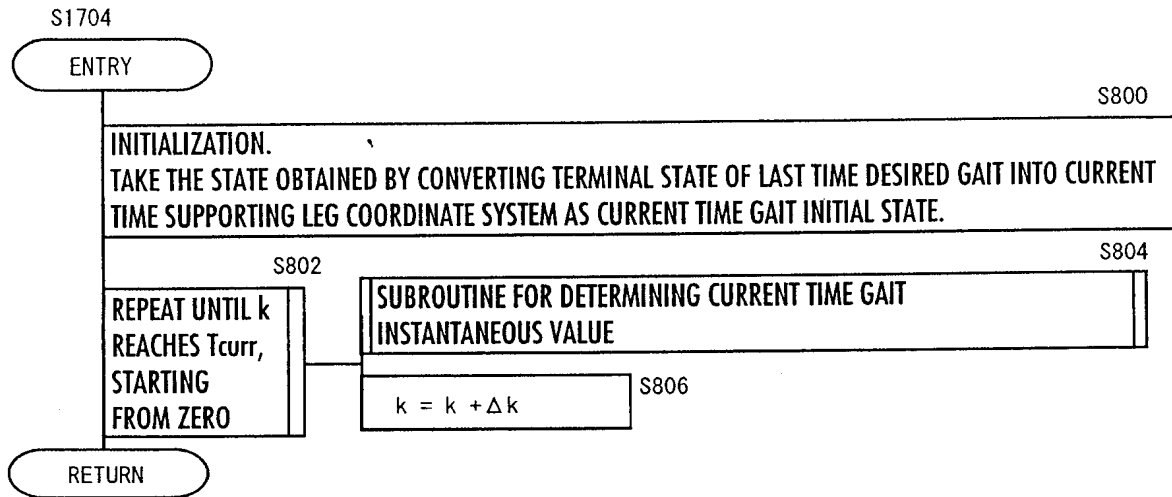


FIG.20

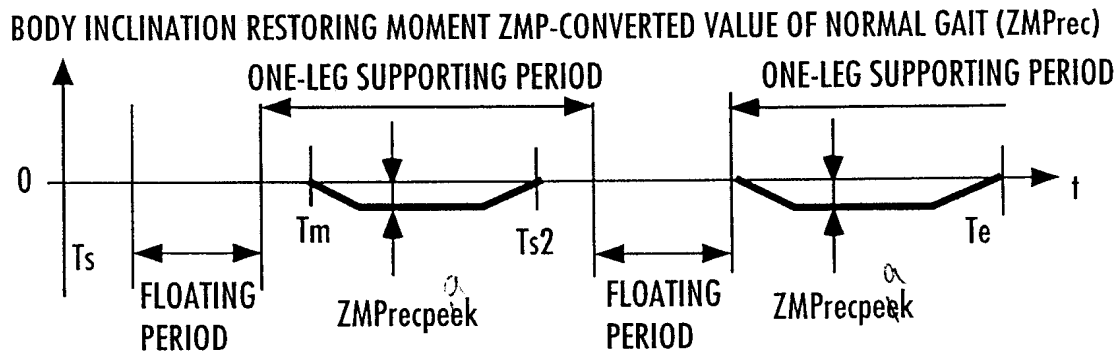


FIG.21

